Amendment to the Drawings

The attached Replacement Sheets of drawings include changes to Figures 1, 2 and 3. In the amended Figures, descriptive text labels have been added to the boxes of respective Figures 1, 2 and 3.

Attachment: Replacement Sheets
             Annotated Sheets Showing Changes

REMARKS

By this amendment, Figures 1-3 and claims 1-3, 5, 13 and 17-20 have been amended. Claims 1-21 remain in the application. Support for the amendments can be found the specification and drawings, as originally filed, and as indicated herein below. Some claims where amended for clarification or to fix typographical errors. For example, in claim 18, the length "O+" has been amended to correctly recite "O+1" as found in the specification, at least on page 11, lines 7-9 and page 17, lines 19-22. No new matter has been added. This application has been carefully considered in connection with the Examiner's Action. Reconsideration and allowance of the application, as amended, is respectfully requested.

Rejection under 35 U.S.C. §101

Claims 1-21 were rejected to under 35 U.S.C. §101 as being directed to non-statutory subject matter. As presented herein, the claims have been amended, as appropriate, to show transformation or reduction of subject matter to a different state of thing, and thus now renders the same as being directed to statutory subject matter. For example, independent claims 1 and 13 are respectively directed to methods of audio encoding that include receiving audio and video data input, encoding the audio data, and outputting a stream that carries encoded audio and video data. Independent claim 17 is directed to an audio encoder the includes an input for receiving audio and video data, means for encoding the audio data, and an output for outputting a stream that carries the encoded audio and video data. Independent claim 19 is directed to an audio decoder the includes an input for receiving encoded audio and video data, means for decoding the encoded audio data, and an output for outputting a stream that carries the decoded audio and video data. The rejection of claims 1, 13, 17, and 19, as well as claims (2-12), (14-16), (18), and (20-21) which depend respectively there from, is now believed overcome.

Claims 1-16 were rejected to under 35 U.S.C. §101 as not falling within one of the four statutory categories of invention. As presented herein, claims 1 and 13 have been amended to include steps of receiving, encoding, and outputting. The method of claims 1 and 13 show a transformation by receiving input data carrying audio and video data, encoding the input data stream, and outputting a stream that carries encoded audio and video data. Accordingly, the transformation renders the same as being directed to statutory subject matter. The rejection of the claims 1 and 13, as well as claims (2-12) and (14-16) which depend respectively from claim 1 and 13, is now believed overcome.

Rejection under 35 U.S.C. §112

Claims 17-21 were rejected to under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is mostly connected, to make and/or use the invention.

As now presented, claims 17 and 19 have been amended to more clearly articulate the respective claimed invention. In particular, claim 17 now recites an audio encoder for coding audio for a stream that carries audio and video data, comprising: an input for receiving audio and video data; means for encoding the audio data for an integer number of N audio frames into audio frames of variable effective audio frame length such that (i) a mean effective audio frame length $\overline{F}$ of the N audio frames equals (ii) the video frame length $1/f_v$ over an integer number of M video frames, where f_v equals a video frame rate of the video data, and the audio frames of a respective audio frame index j each have a variable overlap that provides an effective audio frame length F in a defined sequence of effective audio frame lengths $F(j)$ at encoding; and an output for outputting a stream that carries the encoded audio and video data,

wherein the output stream can be spliced at each video frame without degradation to audio information of the audio data of corresponding audio frames. In a like manner, claim 19 now recites an audio decoder for decoding a stream that encodes audio and video data, comprising: an input for receiving the stream of encoded audio and video data; means for (i) calculating an expected effective audio frame length of an incoming encoded audio frame based on a defined sequence of effective audio frame lengths, (ii) adjusting the actual length of the incoming encoded audio frame to make it equal to the expected effective audio frame length, (iii) determining whether any block within a received encoded audio frame is a redundant block or a non-redundant block, and mapping the non-redundant blocks onto sub-band samples; and an output for outputting decoded audio and video data obtained in response to a respective processing by the calculating, adjusting, and determining means. Support for the amendments to claims 17 and 19 can be found in the specification as originally filed, on at least page 4, lines 12-15 and 32-33; page 5, lines 1-5; and Figures 1-3.

The rejection of the claims 17 and 19, as well as claims (18) and (20-21) which depend respectively from claim 17 and 19, is now believed overcome.

The Drawings

The drawings stand objected to because the unlabeled boxes shown in Figures 1-3 should be provided with descriptive text labels. This objection is believed overcome for at least the following reason. As presented herein, Figures 1-3 have been amended to include appropriate labels to the boxes contained in the respective figures. Support for the amendment to Figures 1-3 can be found in the specification at least on page 6, lines 4-8; and page 7, lines 1-3, 4-23. Objection to the drawings is now believed overcome.

Rejection under 35 U.S.C. §102

Claim 1 recites method of audio encoding a stream that carries audio and video data, including:

receiving audio and video data input;

encoding the audio data, for an integer number of N audio frames of the audio data, to have a mean effective audio frame length $\overline{F}$ that equals a video frame length $\dfrac{1}{f_V}$ over an integer number of M video frames of the video data, where f_V equals a video frame rate of the video data, wherein the encoding includes varying effective audio frame lengths F of the audio frames per a respective audio frame index j in a defined sequence of effective audio frame lengths $F(j)$; and

outputting a stream that carries encoded audio and video data, wherein the output stream can be spliced at each video frame without degradation to audio information of the audio data of corresponding audio frames.

As presented herein, Claim 1 has been amended to more clearly articulate the novel and non-obvious distinct features thereof. Support for the amendments to claim 1 (as well as for claims 13, 17 and 19) can be found in the specification at least on page 2, lines 31-32; page 3, lines 1-10; page 4, line 7; page 10, lines 6-10; page 19, lines 23-25; and Figures 4-7.

Claims 1-4, 13-15, and 17 were rejected under 35 U.S.C. §102(b) as being anticipated by Fielder et al. (US 6,226,608, hereinafter referred to as "**Fielder**"). Applicant respectfully traverses this rejection for at least the following reasons.

The PTO provides in MPEP § 2131 that
"[t]o anticipate a claim, the reference must teach every element of the claim...."

Therefore, with respect to claim 1, to sustain this rejection the **Fielder** reference must contain <u>all</u> of the above claimed elements of the respective claim. However, contrary to the examiner's position that all elements are disclosed in the **Fielder** reference, the latter reference <u>does not</u> disclose "encoding … *audio data*, for an <u>*integer*</u> *number* of *N* audio frames of the audio data, to have a <u>*mean*</u> *effective audio frame length* $\overline{F}$ that *equals* a video frame length $\frac{1}{f_V}$ over an <u>*integer*</u> *number* of *M* video frames of the video data, where f_V equals a *video frame rate* of the video data, wherein the *encoding* includes *varying* <u>*effective*</u> *audio frame lengths F* of the audio frames <u>*per a*</u> <u>*respective*</u> <u>*audio*</u> <u>*frame*</u> <u>*index*</u> *j* in a <u>*defined*</u> <u>*sequence*</u> of effective audio frame lengths *F(j)* … wherein the output stream can be *spliced* at <u>*each*</u> *video frame* without degradation to audio information of the audio data of corresponding audio frames" [*emphasis added*] as is claimed in claim 1. Therefore, the rejection is not supported by the **Fielder** reference and should be withdrawn.

In contrast, the **Fielder** reference discloses segment and block length considerations, for example, in column 4, lines 32-35, that "consideration is needed for the length of audio information segments that are encoded because this length affects the performance of video/audio systems in several ways." At column 4, lines 52-62, on "one hand, the use of long segment lengths allows block transforms to have a high frequency selectivity, which is desirable for perceptual coding processes because it allows perceptual coding decisions like bit allocation to be made more accurately. On the other hand, the use of long segment lengths results in the block transform having low temporal selectivity, which is undesirable for perceptual coding processes because it prevents perceptual coding decisions like bit allocation to be adapted quickly enough to fully exploit psychoacoustic characteristics of the human auditory system." Fielder continues on at column 5, lines 3-5, with the indication that one "solution is to adapt the segment length according to one or more *characteristics* of the *audio information* to be coded." At column 5, line 66+ to column 6, line 8, Fielder discloses "control information

conveying lengths of segments of audio information in a sequence of overlapping segments, a respective segment having a respective overlap interval with an adjacent segment and the sequence having a length equal to the frame interval plus a frame overlap interval, and blocks of encoded audio information, a respective block having a respective length and respective content that, when processed by an adaptive block-decoding process, results in a respective segment of audio information in the sequence of overlapping segments."

Still further, at column 9, lines 55+ to column 10, line 10, Fielder discloses that an analyzer "*identifies characteristics* of one or more audio signals .... Examples of these *characteristics include* rapid changes in *amplitude* or *energy* for all or a portion of the bandwidth of each audio signal, components of *signal* energy that experience a *rapid change* in *frequency*, and the *time* or *relative location* within a *section of a signal* where such events occur. *In response* to these *detected characteristics*, control **46** generates … a *control signal* that *conveys the lengths* of segments in a frame of segments to be processed for each audio channel. Encode **50** adapts a block-encoding process *in response to* the *control signal* … and *applies* the *adapted block-encoding* process to the audio information … to *generate blocks* of encoded audio information. *Format* **48** *assembles* the *blocks* of *encoded information* **and** a *representation* of the *control signal* into *a frame of encoded information* that is *aligned* with a *reference signal* … *[wherein the reference signal]* conveys the alignment of frames of video information." (emphasis added).

However, the **Fielder** reference <u>does not</u> disclose "*varying effective* audio frame lengths F of the audio frames *per a respective audio frame index* j in a *defined sequence* of effective audio frame lengths $F(j)$ … wherein the output stream can be *spliced* at *each* video frame without degradation to audio information of the audio data of corresponding audio frames" as is claimed in claim 1.

Accordingly, claim 1 is allowable and an early formal notice thereof is requested. Claims 2-4 depend from and further limit independent claim 1 and therefore are

allowable as well. The 35 U.S.C. §102(b) rejection thereof has now been overcome.

With respect to claim 13, the same has been amended herein in a similar manner as with respect to the amendment to claim 1. Claim 13 is believed allowable over the **Fielder** reference for the reasons stated herein above with respect to overcoming the rejection of claim 1. Accordingly, claim 13 is allowable and an early formal notice thereof is requested. Claims 14 and 15 depend from and further limit independent claim 13 and therefore are allowable as well. The 35 U.S.C. §102(b) rejection thereof has now been overcome.

With respect to claim 17, the same has been amended herein in a similar manner as with respect to the amendment to claim 1. Claim 17 is believed allowable over the **Fielder** reference for the reasons stated herein above with respect to overcoming the rejection of claim 1. Accordingly, claim 17 is allowable and an early formal notice thereof is requested. The 35 U.S.C. §102(b) rejection thereof has now been overcome.

Rejection under 35 U.S.C. §103

Claim 18 was rejected under 35 U.S.C. §103(a) as being unpatentable over Fielder et al. (U.S. Patent 6,226,608, hereinafter referred to as "**Fielder**"). Applicant respectfully traverses this rejection for at least the following reasons.

Claim 18 depends from and further limits allowable independent claim 17 and therefore is allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome.

Claims 16 and 19-21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fielder et al. (U.S. Patent 6,226,608, hereinafter referred to as "**Fielder**") in view of Murakami et al. (U.S. Patent 5,930,251, hereinafter referred to as

"**Murakami**"). Applicant respectfully traverses this rejection for at least the following

reasons.

With respect to claim 16, the same depends from and further limits claim 14,

which depends from and further limits allowable independent claim 13 and therefore is

allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome.

With respect to claim 19, Applicant respectfully traverses this rejection on the

grounds that these references are defective in establishing a prima facie case of

obviousness.

As the PTO recognizes in MPEP § 2142:

> ... *The examiner bears the initial burden of factually supporting any prima*
> *facie conclusion of obviousness. If the examiner does not produce a prima facie*
> *case, the applicant is under no obligation to submit evidence of*
> *nonobviousness...*

It is submitted that, in the present case, the examiner has not factually supported

a prima facie case of obviousness for at least the following reasons.

1.   Even When Combined, the References Do Not Teach the Claimed
Subject Matter

The **Fielder** and **Murakami** references cannot be applied to reject claim 19

under 35 U.S.C. § 103 which provides that:

> *A patent may not be obtained ... if the differences between the subject*
> *matter sought to be patented and the prior art are such that the <u>subject matter as</u>*
> *<u>a whole</u> would have been obvious at the time the invention was made to a person*
> *having ordinary skill in the art to which the subject matter pertains ...* (Emphasis
> added)

Thus, when evaluating a claim for determining obviousness, <u>all</u> <u>limitations</u> <u>of</u> <u>the</u>

<u>claim</u> <u>must</u> <u>be</u> <u>evaluated</u>. However, since neither **Fielder** nor **Murakami** teaches

"*varying* *effective* *audio frame lengths F* of the audio frames per a *respective* *audio*
frame *index* j in a *defined* *sequence* of effective audio frame lengths $F(j)$ ... wherein
the output stream can be *spliced* at *each* *video frame* without degradation to audio
information of the audio data of corresponding audio frames" (emphasis added) as is
claimed in claim 19, it is impossible to render the subject matter of claim 19 as a whole
obvious, and the explicit terms of the statute cannot be met.

Thus, for this reason, the examiner's burden of factually supporting a *prima facie*
case of obviousness has clearly not been met, and the rejection under 35 U.S.C. §103
should be withdrawn.

2.   The Combination of References is Improper

Assuming, arguendo, that the above argument for non-obviousness does not
apply (which is clearly <u>not</u> the case based on the above), there is still another
compelling reason why the **Fielder** and **Murakami** references cannot be applied to
reject claim 19 under 35 U.S.C. § 103.

§ 2142 of the MPEP also provides:

> *...the examiner must step backward in time and into the shoes worn by the
> hypothetical 'person of ordinary skill in the art' when the invention was unknown
> and just before it was made.....The examiner must put aside knowledge of the
> applicant's disclosure, refrain from using hindsight, and consider the subject
> matter claimed 'as a whole'.*

Here, neither **Fielder** nor **Murakami** teaches, or even suggests, the desirability
of the combination since no one of the references teach the specific "*varying* *effective*
audio frame lengths F of the audio frames *per* *a* *respective* *audio* *frame* *index* j in a
defined *sequence* of effective audio frame lengths $F(j)$ ... wherein the output stream
can be *spliced* at *each* *video frame* without degradation to audio information of the
audio data of corresponding audio frames" as specified above and as claimed in claim
19.

Thus, it is clear that none of the references provides any incentive or motivation supporting the desirability of the combination. Therefore, there is simply no basis in the art for combining the references to support a 35 U.S.C. § 103 rejection.

In this context, the MPEP further provides at § 2143.01:

> *The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.*

In the above context, the courts have repeatedly held that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination.

In the present case it is clear that the combination presented in the Office Action arises solely from hindsight based on the invention without any showing, suggestion, incentive or motivation in either reference for the combination as applied to claim 19. Therefore, for this reason, the examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met, and the rejection under 35 U.S.C. §103 should be withdrawn.

Accordingly, claim 19 is allowable and an early formal notice thereof is requested. Dependent claims 20-21 depend from and further limit independent claim 19 and therefore are allowable as well. The 35 U.S.C. § 103(a) rejection thereof has now been overcome.

Conclusion

Except as indicated herein, the claims were not amended in order to address issues of patentability and Applicants respectfully reserve all rights they may have under the Doctrine of Equivalents. Applicants furthermore reserve their right to reintroduce

subject matter deleted herein at a later time during the prosecution of this application or a continuation application.

It is clear from all of the foregoing that independent claims 1, 13, 17 and 19 are in condition for allowance. Claims 2-12 depend from and further limit independent claim 1 and therefore are allowable as well. Claims 14-16 depend from and further limit independent claim 13 and therefore are allowable as well. Claim 18 depends from and further limits independent claim 17 and therefore is allowable as well. Claims 20-21 depends from and further limits independent claim 19 and therefore are allowable as well.

The amendments herein are fully supported by the original specification and drawings; therefore, no new matter is introduced. An early formal notice of allowance of claims 1-21 is requested.

Respectfully submitted,

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ATTACHMENTS

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